Management of the Internet and Complex Services

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Deliverable D4.4
EMANICS dissemination, promotion and collaboration initiatives

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V1.2	April 8,2008	Olivier Festor	Cross-check + typos correction

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1 Executive summary

These deliverable presents the work conducted within WP4 since January 2007 up to March 2008, excluding the impact analysis already presented last June in deliverable D4.3. The orientation is twofold; in occasions it describes activities that have been undertaken for the first time and in others it strictly focuses on usage data of services and tools that were already reported in previous documents. We can say that this deliverable is a complement of the previous deliverable D4.3 and a precursor of at least one more deliverable with similar orientation, foreseen in March 2009.

Deliverable D4.4 is structured around three main sections, namely maintenance and consolidation of dissemination and collaboration tools (section 3 of this document), extended dissemination & promotion (section 4 of this document) and the enhanced collaboration environment (section 5 of this document).

In the section of maintenance and consolidation of dissemination and collaboration tools we elaborate on the final steps conducted to make the QoS Management Portal an effective and self-contained portal of network management. We also elaborate on the creation of a PhDs database in order to make aware PhD students within EMANICS of the work done by their colleagues. This database is based on a wiki that was integrated on purpose on our Joomla content management system. We continue that chapter presenting the most relevant usage data of our EMANICS site, which are structured around thirteen statistics, namely site usage, map overlay report, new visits, new vs returning visitors, used languages, time on site for visitors, visitors loyalty, used browsers and operating systems, network locations, search keywords, referring sites, traffic sources and page view volume. We also continue with the actions undertaken to improve indexing of the SimpleWeb by the Google search engine. This section is concluded referring to the publication of two newsletter issues during 2007 with the intention to serve better the EMANICS interests, as the published letters coincided with the reporting of important events in the community.

In the section of extended dissemination and promotion we start reporting the creation of a new portal for the IFIP WG 6.6. The rationale behind this new portal was that the chair and vice-chair of this working group are both EMANICS participants and because the maintenance of the former website was cumbersome because it was created via some website creation program, the name of which was unknown to the previous website owner. Therefore the new chair decided to completely rewrite the HTML code, while still keeping the old "look and feel". The section ends with a description of the aims of the EMANICS Secretariat, a complementary activity to the newsletter, in the sense that, as the newsletter, it describes the cooperation initiatives among partners and announces a number of related events such as conferences, meetings, workshops and it also alerts audience with respect to forthcoming events, but with the difference that the EMANICS Secretariat pretends to inform the community almost in real time.

The section devoted to the enhanced collaboration environment starts describing the rationale for the substitution of the former EMANICS collaboration environment (based on Libresource) by a new one based on two open source tools, namely Trac [1] and SVN [2]. It also provides specific data usage of such a new environment and finally it concludes with the technical aspects of the integration of the above mentioned wiki in the Joomla CMS [3].

2 Introduction

Just a few months after its kick off in January 2006 the EMANICS consortium had already established the basic tools for external dissemination and internal collaboration. These tools were a web site and an enhanced wiki respectively. In both cases, the logical need of being "on the air" as soon as possible, precluded to select the tools taking into account specific user needs; in fact, it was no time to take decisions like to structure content in this or that way or use this CMS instead of the other. For this reason, the initial JPA already established to have a deliverable consisting of the evaluation of the impact of the dissemination and collaboration tools after the firsts 18 months of usage, namely deliverable D4.3.

Deliverable D4.3 accomplished its goals in the sense that revealed pros and cons of our electronic collaboration and dissemination means. Appropriate corrective actions were adopted but also we concluded that it would be necessary to continue tracking the external and internal impact in the future. For that reason we decided to articulate the future deliverables of WP4 around two additional impact evaluation reports. Then, taking advantage of the edition of the new JPA for EMANICS Phase II (months 18th to 36th) an a later extension up to month 42 we decided to establish two new impact report deliverables, namely D4.4 by the end month 27th (this one) and D4.5 one year later. At that moment there will be 9 months lasting to the end of the project.

The current deliverable is then inspired with the purpose of serving our community as a benchmark reference to improve our basic goals of maintaining and extending the tools and content of interest for the EMANICS and wider communities. Therefore we present our activities which consist of corrective actions adopted as a consequence of the analysis of usage and impact of the dissemination and collaboration framework, as well as from the evaluation of other indicators, and also we present proactive activities undertaken with always looking at our WP4 objectives.

After this introduction, we have Section 3, which is devoted to the activities and results concerning the maintenance and consolidation of tools and content. The scope of such activities range a QoS Portal consolidation, the implementation of a collaboration database for PhDs research work, the maintenance of both the EMANICS site and the SimpleWeb site [4], and finally the publication of issues of the EMANICS newsletter. Section 4 follows, dealing with new brand activities; this is activities that have not been reported or mentioned in previous deliverables. In this case we concentrate in the creation of a new dissemination portal and in the set up of an activity intended to inform the community in a weekly basis. Next one, Section 5, also concentrates in new activities but in this case focused in improving the collaboration environment. Hence we discuss the replacement of the whole EMANICS collaboration environment and also the introduction of a wiki resource in our Joomla content management system [3]. The deliverable ends with sections devoted to concluding remarks, references and a table of abbreviations.

3 Maintenance and consolidation of dissemination and collaboration tools

3.1 The QoS Management portal

During 2006 we provided a thorough requirements analysis and design of an information portal that would cover the following areas:

IP Networking

- Multicast management
- Admission control
- Inter-domain traffic engineering
- Survivability / Resilience

Network/Service Management

- Policy Analysis
- Policy-based QoS Management
- Web services / XML –based management

Mobile Ad hoc Network Management

- MANET management
- Context-awareness
- Service discovery/provisioning

The portal became available to the public at the "QoS Management" label of the home page of the EMANICS web site [5].

Later on, in the 2007 several actions were conducted in order to consolidate the portal that is nowadays fully operational. Among these actions we can mention the following:

- Work on providing generic guidelines for the development of additional content integration information portals
- Analysis of tools to support consistent and uniform implementation of similar information portals, based on the systematic design process we have followed. These include: CSS for formatting, XML documents and XML Schema Definitions for interoperable and generic content representation and storage and XSL Transformations for uniform presentation of the integrated content.

3.2 Integration of local dissemination workflows: the PhDs database

The purpose of creating a PhDs database was to make aware PhD students within EMANICS of the work done by their colleagues. This would contribute to strengthen the collaboration between parties and to facilitate the integration aimed at the objectives of this NoE.

The requirements were quite simple. First of all, the information to be provided for each PhD thesis should be the essential to allow other people to understand the research scope, objectives and main technical approach as well as to offer the main results

attained up to the moment. The second requisite was to facilitate students the easiest and more pragmatic mechanism to update the information. We have to keep in mind that although the thesis scope can be known relatively early in the process of a PhD execution, the objectives, technical approach and specially the results may vary throughout the whole thesis lifetime.

In order to cope with the first objective, we designed a template consisting in four fields that we would invite student to fill in. Figure 1 shows the template

Figure 1. Template of information from each PhD student

Beyond the basic guidelines fixed by this template, the student is allowed to include links to other information; for instance, the student could use his name to link the above template to its own personal web page. The Abstract is recommended not to exceed one A4 page, 12p case. The Related papers field is intended to allow for listing the papers published in connection with the thesis. Here again the student can provide links to allow the reader to get such papers. Finally, the Additional Information field is completely open.

Based on the above described template, the database would consist of as many pages (instances of the template) as PhD students registered in the NoE. Therefore, it was necessary an indexing mechanism to facilitate the browsing process. Indexing was considered to be based either in the name of the student, in the title of his/her thesis and in his/her partner acronym. Also, search by topic was considered a good point but this would require first to define research scope topics commonly accepted by the community. As this is part of the activity of WP1 and it is not yet concluded, we decided to postpone indexing by topic for a future release.

3.2.1 Implementation alternatives

Keeping in mind that EMANICS uses Joomla [3] as Content Management System (CMS), the first alternative was to consider it as the supporting mechanism. Other alternatives considered were a direct implementation on a database like MySQL and finally, the use of a wiki. In the following paragraphs we succinctly describe each and finally we present the reasons for the adopted one.

A Joomla based solution would require the creation of static pages, say one per student, and allow users to edit content on it. This would work for a few students but for a number of several tenths, as it is the case in EMANICS, this would be very complex to manage. Another alternative would be to get rid of the file upload facility offered by this CMS. This solution would require creating only one static page, say with the shape of a table where each row would be a record of one student. Then, the users would be able to insert their basic data in one row and one of the elements of this information would be a link to a file that would be uploaded into the system. Although feasible, this solution was considered to be too rigid and cumbersome. We have to say that this second alternative was in fact implemented and for some time it was tested by a group of people within WP4, but finally the results were disappointing especially in regards of the second requirement as described in the above section.

A real database implementation was very appealing especially in terms of support of search mechanisms. Content in the database could be retrieved by author, by partner, topic or any combination. Users could also have a good support to insert and maintain the information. We could think in a template based approach were the user would be asked to insert data fields or any textual information. Unfortunately, the price to pay in this approach is the design of the interface. This could be done in PHP or a similar language but it would require time and resources. In addition, perhaps the power of such a flexible mechanism would even be not justified considering the volume of information we are talking about. Keeping this in mind but specially the need to provide the resource as soon as possible, we discarded this option as well.

Wiki based solutions are well know today as an easy mechanism to publish in the web. In this case, users could create their own pages quite straightforward and the syntax to use is not a problem assuming that you provide a template that is used as reference; just substituting the information contained in the different fields of the template the work is done in practice without any knowledge of the wiki syntax. In summary, wiki was promising in terms of easy maintainability. Also, the wiki was really fast to set up (it is a process of installing a software package). Nevertheless, the main drawback of this solution was the need to integrate it in the web site. In fact, a standalone solution would be troublesome because of additional authentication and interfaces. After some search, we concluded that our Joomla-based web site would allow us to integrate DokuWiki [6], a general purpose project management wiki. This was finally the solution adopted.

3.2.2 Current structure and content

The PhDs database is structured in pages of DokuWiki. An index page contains the indexing information that currently is the partner acronym, the name of the author and the title of the PhD thesis. Figure 2 shows the first records of the index page. Names of authors are organized in alphabetic order within each partner. A total of around 40 authors exist today. The title of the thesis is a hyperlink to the page that contains the information of the template of Figure 1. Therefore we have at least as many pages as PhDs and an additional index page.

People wishing to add content (add a new page in case of newcomers, or modify an existing one) have to be registered as users of the Members Area of the EMANICS Site Administration. Non registered people can access the information with read-only rights. For any user's category, access is through the button PhD Theses of the main menu of the EMANICS site [5]. This sends the user to the index page of the wiki.

Registered users are allowed to edit the index page to introduce/modify their own records and also their respective pages. Details of the edition procedure are provided in a document in the internal collaboration environment [7].

Figure 2. Part of the wiki index page within the EMANICS web site

3.3 Maintenance of services and tools

3.3.1 The EMANICS web site

These results have been provided by Google Analytics [8] through the Urchin JavaScript which is included in every page of the website and that is launched automatically in the web browser of the visitor.

3.3.1.1 Site usage

The statistics summaries presented hereafter show the number of visits, the ratio pages/visit, the bounce rate, page views, the average time on site and the new visits. All

these data were collected by Google analytics between 1st of June 2007 and 13th of February 2008.

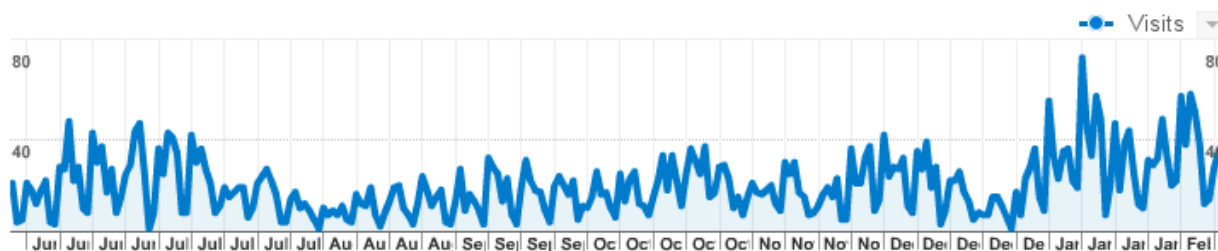Here are detailed explanations for each type:

- Visits – the number of visits the site receives. It is the most basic measure of site impact.

- Pageviews – is the total number of pages viewed on the site and is a general measure of how much the site is used. It is more useful as a basic indicator of the traffic load on the site and server rather than as a marketing measure.

- Pages/Visit – Average Pageviews is one way of measuring visit quality. A high Average Pageviews number suggests that visitors interact extensively with the site. A high Average Pageviews results from one or both following factors: (1) Appropriately targeted traffic (i.e. visitors who are interested in what the site offers) and (2) High quality content effectively presented on the site. Conversely, a low Average Pageviews indicates that the traffic coming to the site has not been appropriately targeted to what the site offers or that the site does not deliver what was promised to the visitor.

- Average Time on Site – is one way of measuring visit quality. If visitors spend a long time visiting the site, they may be interacting extensively with it. However, Time on Site can be misleading because visitors often leave browser windows open when they are not actually viewing or using the site.

- Bounce Rate – is the percentage of single-page visits (i.e. visits in which the person left the site from the entrance page). Bounce Rate is a measure of visit quality and a high Bounce Rate generally indicates that site entrance (landing) pages aren't relevant to the visitors.

- % New Visits – a high number of new visitors suggests success at driving traffic to the site while a high number of return visitors suggests that the site content is engaging enough for visitors to come back.

Figure 3.EMANICS site usage statistics
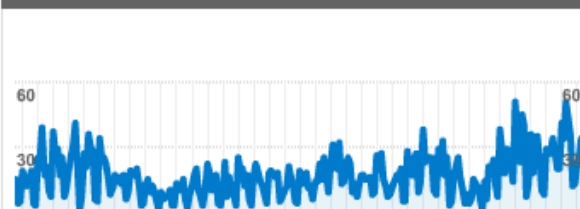
Most of the values presented in the report above are similar to the previous AWStats reports and explain themselves [9]. Some of them are extended with more details and presented further on in this report.

3.3.1.2 Map Overlay report

The Map Overlay report is an interesting part of statistics of website especially for international projects with participants involved from different countries like in EMANICS.

The metrics presented here are classified by country and show the volume of visits (visits, pageviews) and quality of such visits (pageviews per visit, new visits, bounce rate).
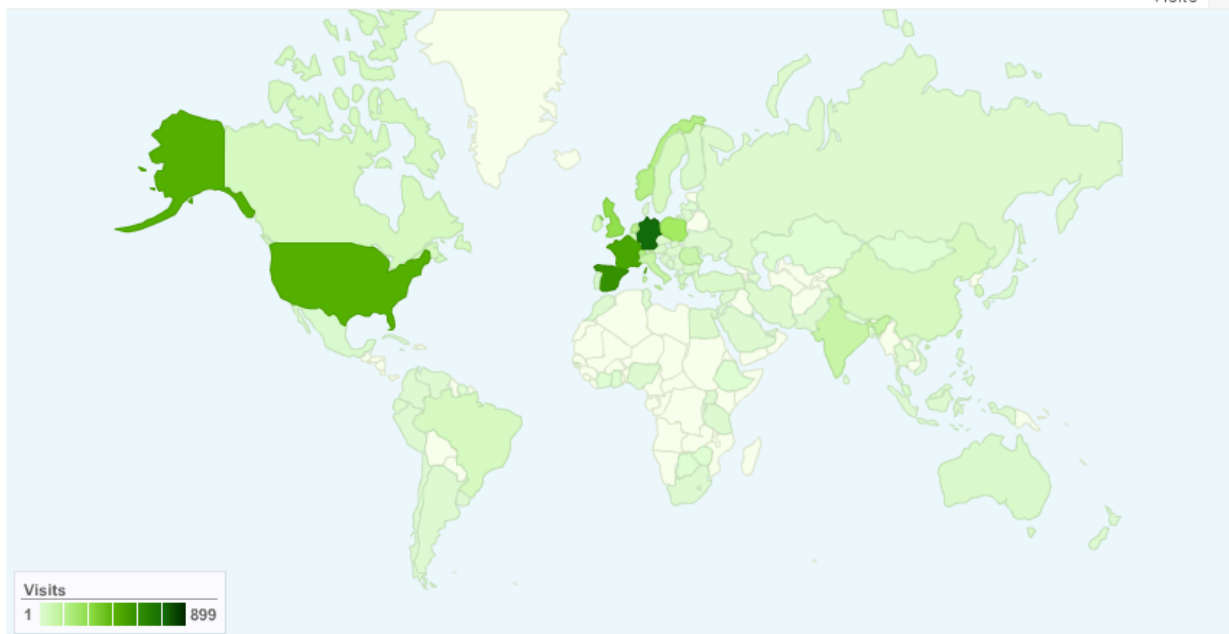
Map Overlay

Export ▾ | ☒ Email | 🔠 Add to Dashboard

Jun 1, 2007 - Feb 13, 2008
Comparing to: Site ⑦

Map Overlay

Visits ▾

Visits
1 ▮▮▮▮▮▮ 899

5,215 visits came from 98 countries/territories

Detail Level: City | Country/Territory | Sub Continent Region | Continent   Segment: Choose... ⌄

Site Usage	Goal Conversion				Views: 🔳 ◉ ☰ ┴
Visits ⑦ 5,215 % of Site Total: 100.00%	Pages/Visit ⑦ 4.91 Site Avg: 4.91 (0.00%)	Avg. Time on Site ⑦ 00:04:01 Site Avg: 00:04:01 (0.00%)	% New Visits ⑦ 52.79% Site Avg: 52.83% (-0.07%)	Bounce Rate ⑦ 44.74% Site Avg: 44.74% (0.00%)	

	Country/Territory	Visits ↓	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
1.	Germany	899	4.30	00:03:10	37.37%	37.71%
2.	Spain	704	9.33	00:09:10	21.16%	23.72%
3.	France	586	4.84	00:03:25	46.42%	35.15%
4.	United States	553	1.84	00:00:41	90.24%	81.92%
5.	United Kingdom	355	4.85	00:03:47	58.03%	43.94%
6.	Poland	288	8.56	00:08:37	25.69%	34.03%
7.	Switzerland	232	3.98	00:02:58	41.81%	45.69%
8.	Norway	206	3.15	00:01:43	60.19%	49.03%
9.	Netherlands	183	5.62	00:04:31	42.08%	32.24%
10.	Italy	114	5.58	00:04:49	72.81%	47.37%

Find Country/Territory: containing ▾ [   ] Go   Go to: 1   Show rows: 10 ▾   1 - 10 of 98 ◀ ▶

Figure 4. EMANICS map overlay report

Visitors domains/countries (Top 10)		Pages	Hits	Bandwidth
Commercial	com	53249	58837	705.60 MB
Unknown	ip	37782	65273	981.63 MB
Network	net	28061	36655	653.85 MB
Poland	pl	18039	38107	407.14 MB
Germany	de	11215	19242	315.62 MB
France	fr	5072	10222	232.94 MB
Unknown	gbl	3415	3420	41.69 MB
Spain	es	2452	5399	105.64 MB
United Kingdom	uk	2446	5528	148.51 MB
Netherlands	nl	2022	4541	50.51 MB
Others		16558	29609	518.75 MB

Figure 5. EMANICS map overlay report for June-December 2007 generated by Awstat

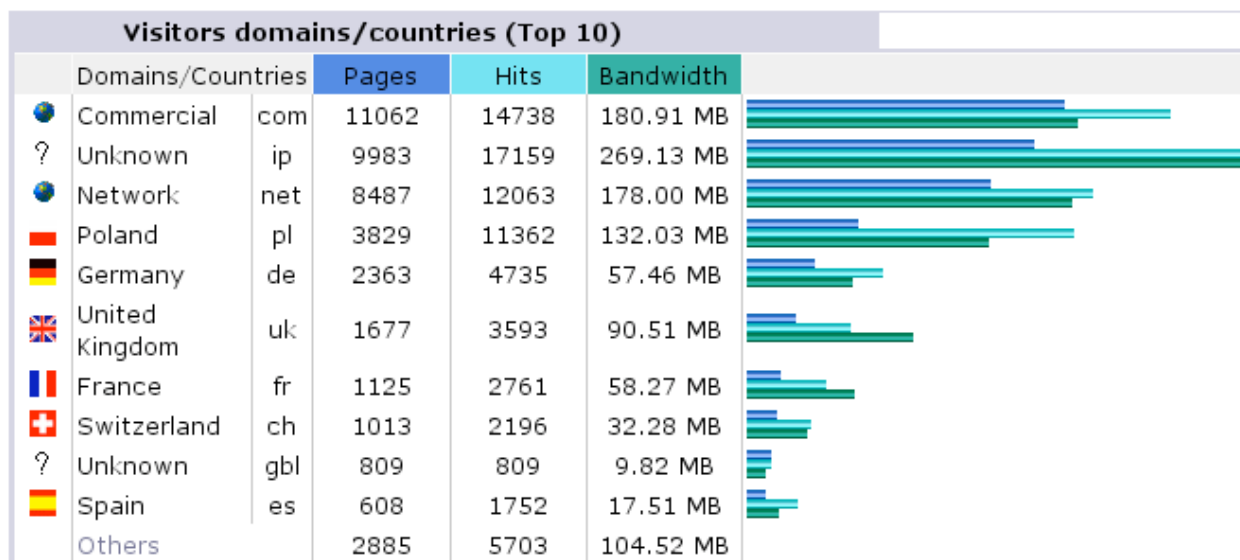| Visitors domains/countries (Top 10)		Pages	Hits	Bandwidth
Commercial	com	11062	14738	180.91 MB
Unknown	ip	9983	17159	269.13 MB
Network	net	8487	12063	178.00 MB
Poland	pl	3829	11362	132.03 MB
Germany	de	2363	4735	57.46 MB
United Kingdom	uk	1677	3593	90.51 MB
France	fr	1125	2761	58.27 MB
Switzerland	ch	1013	2196	32.28 MB
Unknown	gbl	809	809	9.82 MB
Spain	es	608	1752	17.51 MB
Others		2885	5703	104.52 MB

Figure 6. EMANICS map overlay report for January-February 2008 generated by Awstat

We can notice that volumes provided by Google Analytics are quite similar to the figures generated by AWStats showed above especially for high ranked countries like Germany, Spain, France, United Kingdom and Poland. Another usage group includes countries like Switzerland, Norway, Netherlands and Italy. To analyse this issue deeper, another more detailed report was generated and is presented in Figure 7. It shows that the later group of countries is below 5 % in total number of visits. However, United States is 10.6 % which is quite surprising compared to the report of AWStats where this country is missing. The explanation of the difference in these two reports may be due to the fact that AWStats report presents three highly ranked domains: .com, .net and "unresolved" IP. AWStats relies on reverse DNS resolution but Google Analytics can utilize Regional Registry databases instead where we can find all allocated addresses from IANA. Using this approach there are not "unresolved" addresses at all and all of

them can be easily assigned to particular countries; even such global domains like .com and .net. This is a conclusion draw from these reports but not confirmed by Google, because Google does not explain in detail how this type of report is generated.
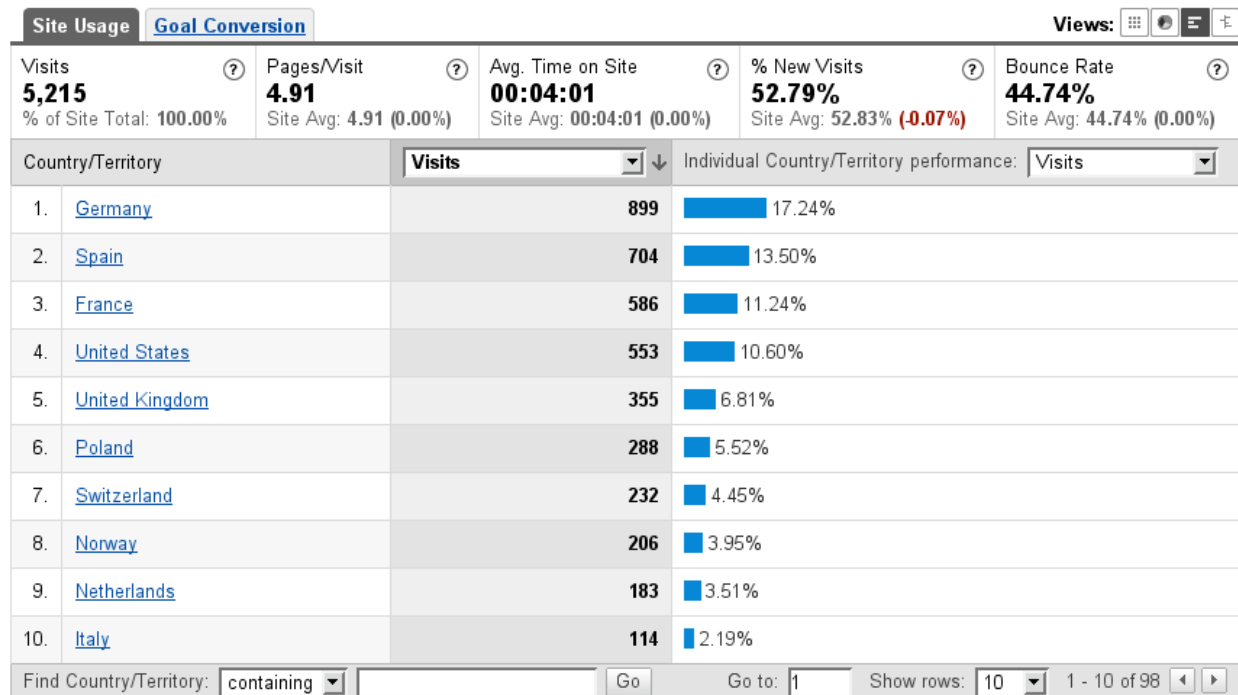

Figure 7. EMANICS map overlay report in percent

3.3.1.3 New visits

This report presents the per month volume of new visits. Therefore is a detailed view of the summary provided in 3.3.1.1.
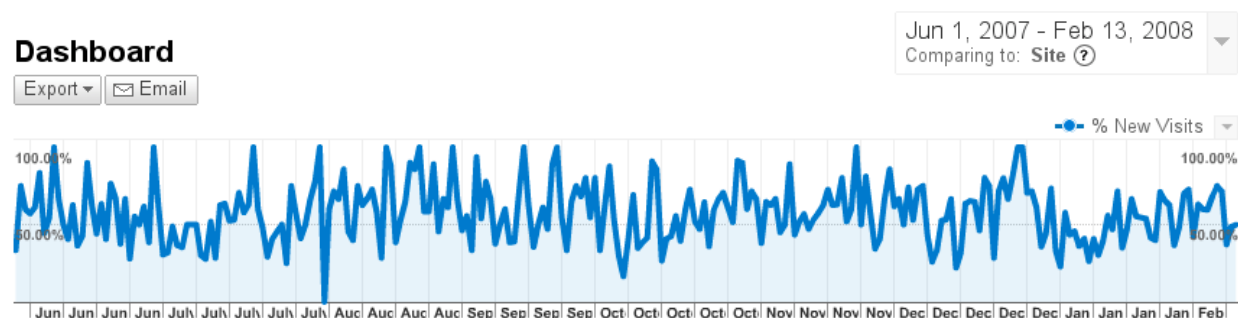

Figure 8. Evolution of EMANICS new visits

The graph presented in Figure 8 shows that the level of new visits varies mostly between 50% and 100% along the reported period and there are no visible constant growing or decreasing trends. This means the EMANICS.org website is constantly attracting new visitors.

3.3.1.4 New Vs. Returning visitors

A high number of new visitors suggests success in driving traffic to the site, whereas a high number of returning visitors suggests that the site content is engaging enough for visitors to come back.
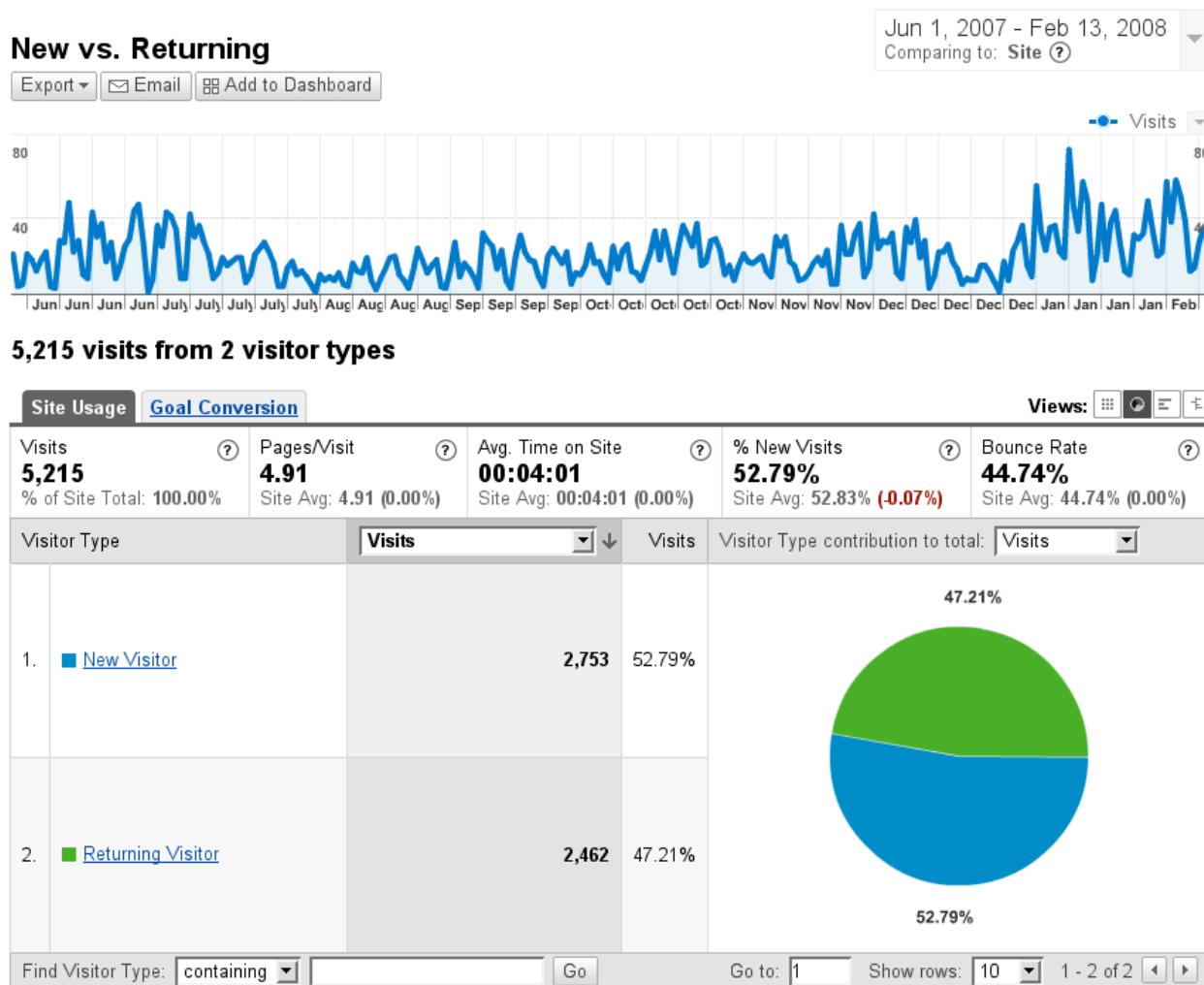

Figure 9. New vs. returning visitors in EMANICS

Report presented in Figure 9 shows that there is a higher level of new visitors (52.79%) comparing to returning visitors (42,21%). It means that EMANICS website has high impact on the web as it can draw the attention of a significant number of new visitors.

Although the EMANICS website is attracting users, visitors' domains, as well as the use of the project name as the most popular searching keyword (see par. 3.3.1.10), reveal that these are mostly project participants browsing the site. We think that attracting more Internet users can only be done through the provision of more content related to the area of network and service management. This could include not only text materials but also new media like video (e.g. from conferences). Thus project partners are encouraged to publish as much documents as possible and possibly consider recording and providing video of EMANICS related events. Copyrights should be considered here of course.

3.3.1.5 Languages

This report presents which languages the visitors prefer to use and how these groups of visitors differ with respect to site usage, conversions, and other metrics. The report captures the preferred language that visitors have configured on their web browser.
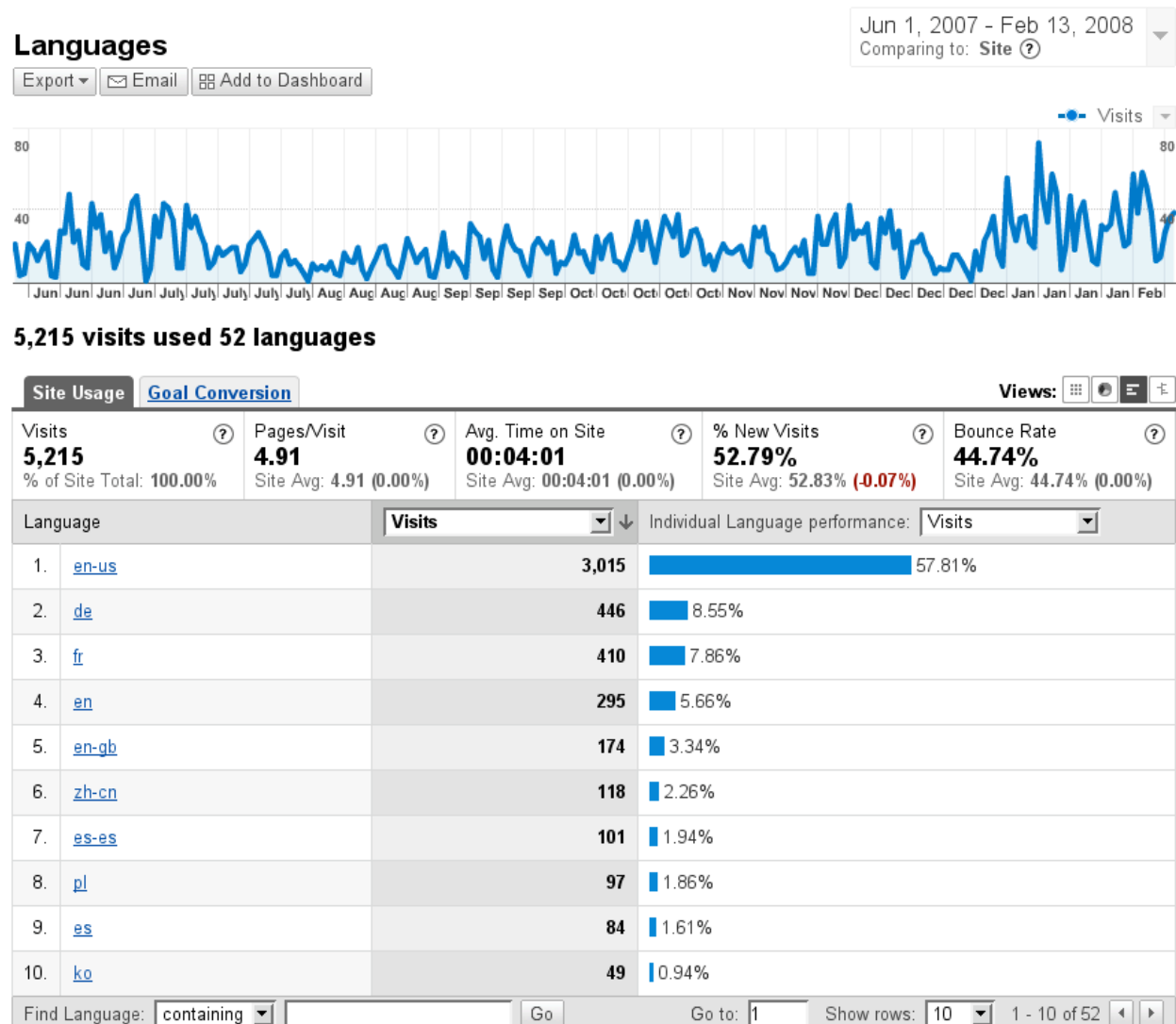

Figure 10. Languages of EMANICS visits

Figure 10 shows that most visitors prefer English language (more than 61% adding en-us and en-gb). The higher places in these statistics are occupied by the same area countries appearing in the *Map overlay report* and in the *Top 10 of domains/countries*. It simply means that visitors prefer their native language configured in their web browsers.

3.3.1.6 Time on Site for all visitors

This report presents the time spent on the site. This can be one of the different ways of measuring visit quality. If visitors spend a long time visiting the site, they may be interacting extensively with it. However, *Time on Site* can be misleading because visitors often leave browser windows open when they are not actually viewing or using the site. This is an extended view of the summary presented in 3.3.1.1
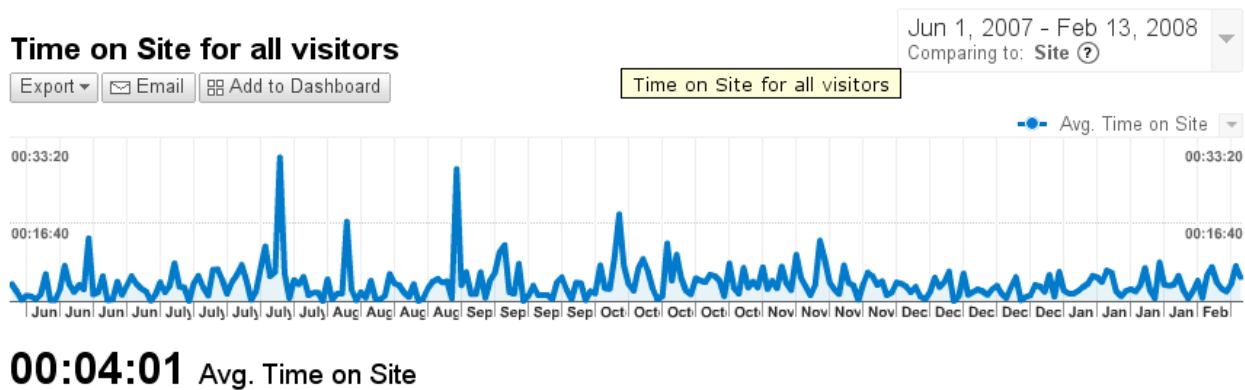
Figure 11. Time spent on EMANICS site for all visitors

3.3.1.7 Visitor loyalty

Loyal visitors are usually highly engaged with the brand and a high number of multiple visits indicates good visitor retention. A high number of new visitors (i.e. those at the top of the table) indicates strong visitor recruitment.

In the histogram of Figure 12 the most loyal visitors are shown at the bottom and the new, and therefore least loyal visitors, are shown at the top.

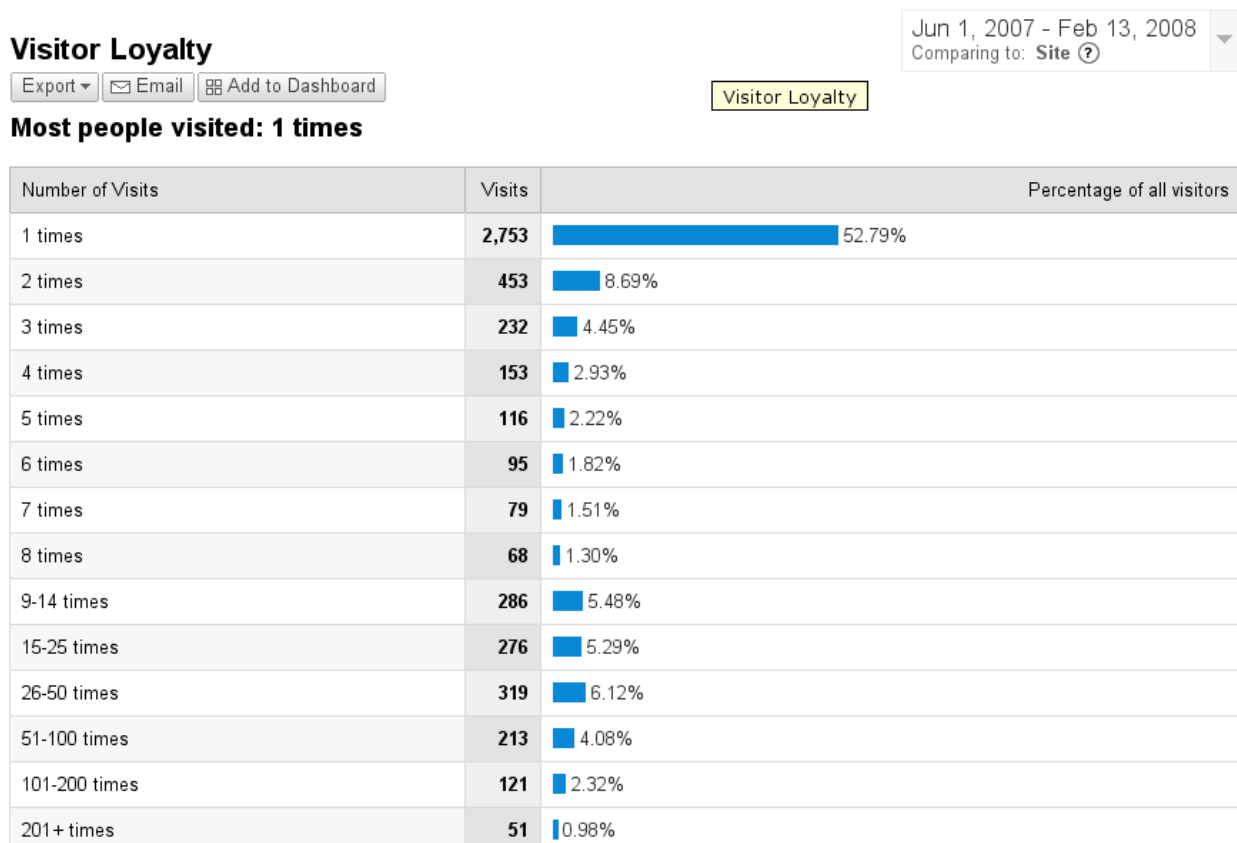| Number of Visits	Visits	Percentage of all visitors
1 times	2,753	52.79%
2 times	453	8.69%
3 times	232	4.45%
4 times	153	2.93%
5 times	116	2.22%
6 times	95	1.82%
7 times	79	1.51%
8 times	68	1.30%
9-14 times	286	5.48%
15-25 times	276	5.29%
26-50 times	319	6.12%
51-100 times	213	4.08%
101-200 times	121	2.32%
201+ times	51	0.98%

Figure 12. EMANICS visitors' loyalty

Report presented in Figure 12 shows that the EMANICS website has higher impact for new visitors which mostly do not return often (52%) than for returning visitors.

3.3.1.8 Browsers and operating systems

Figure 13 shows which browsers are most used. Optimizing the site for the appropriate technical capabilities of a given set of browsers helps making the site more engaging and usable.
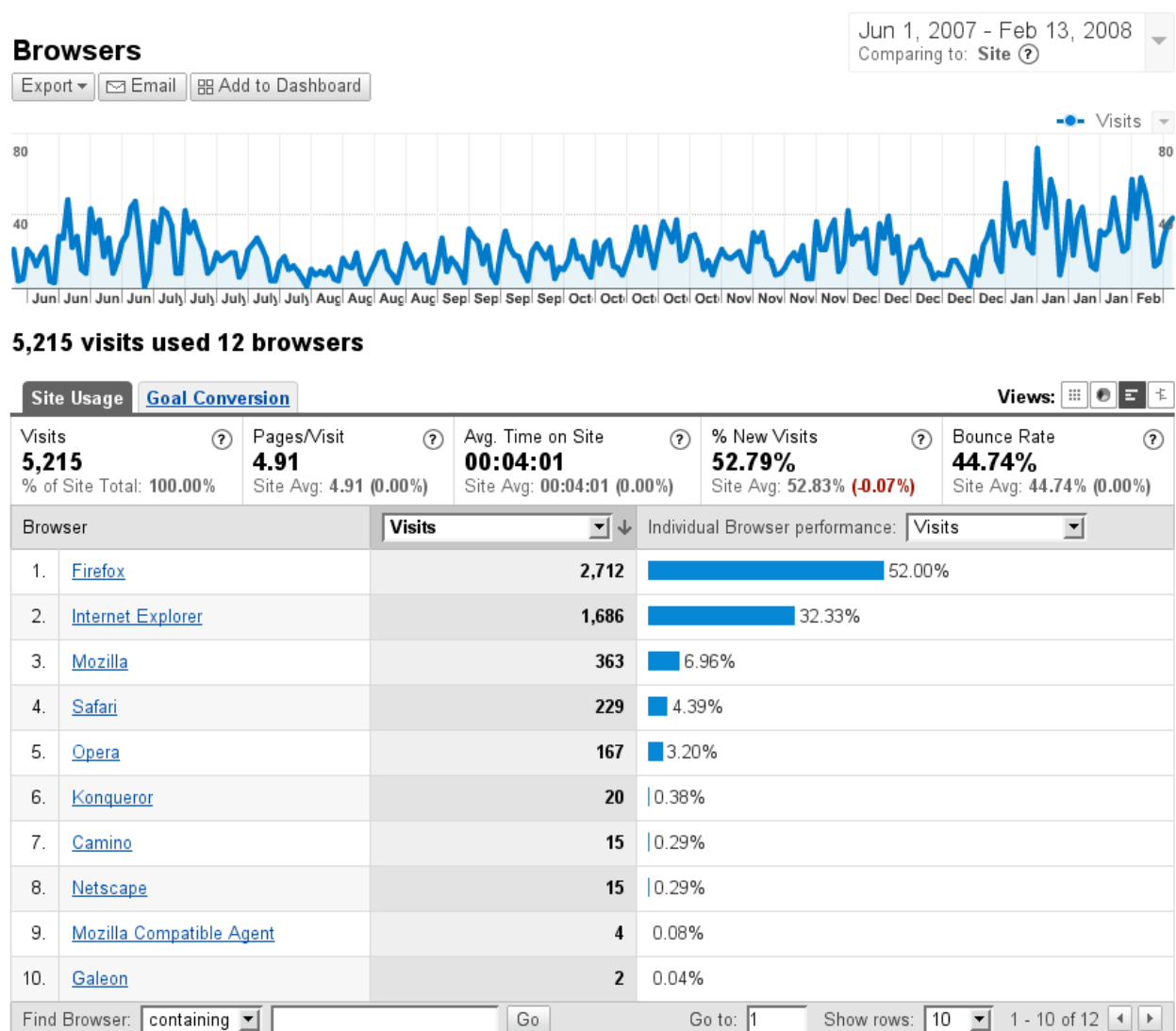

Figure 13. Used browsers to explore the EMANICS site

The EMANICS website is continuously tested for compatibility with the following browsers: Firefox, Internet Explorer and Mozilla. These three web browsers are used by 91.29% of visitors and 58.96% of visitors when we sum up Firefox and Mozilla browsers (which use the same engine).

3.3.1.9 Network locations

This report shows which Internet service providers visitors use. It allows tracking the Internet service provider (ISP) domains to which the user resolves. The domain is determined by the Internet service that owns the user's internet protocol (IP) identifier.

5,215 visits came from 1,205 network locations

	Site Usage	Goal Conversion				Views:
Visits **5,215** % of Site Total: **100.00%**	Pages/Visit **4.91** Site Avg: **4.91** (0.00%)	Avg. Time on Site **00:04:01** Site Avg: **00:04:01** (0.00%)	% New Visits **52.79%** Site Avg: **52.83%** (-0.07%)	Bounce Rate **44.74%** Site Avg: **44.74%** (0.00%)		

	Network Location	Visits ↓	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
1.	universitat politecnica de catalunya	302	9.41	00:10:04	13.58%	16.56%
2.	institute of bioorganic chemistry	238	9.51	00:09:42	20.59%	30.67%
3.	loria-inria	225	5.81	00:04:22	20.89%	23.11%
4.	universitaet der bundeswehr muenche	181	3.44	00:01:41	13.26%	30.94%
5.	telefonica de espana	135	9.39	00:09:44	16.30%	28.89%
6.	university of zurich	134	4.08	00:03:30	23.88%	36.57%
7.	leibniz-rechenzentrum der bayerische	132	4.97	00:04:21	5.30%	28.03%
8.	ya.com internet factory	125	14.50	00:13:21	6.40%	12.00%
9.	university twente	117	7.04	00:06:08	18.80%	20.51%
10.	jacobs university bremen ggmbh	115	5.78	00:04:36	44.35%	31.30%
11.	limelight networks inc.	105	1.01	> 00:00:00	100.00%	99.05%
12.	kavam	102	1.00	00:00:00	100.00%	100.00%
13.	deutsche telekom ag	82	4.55	00:03:33	56.10%	57.32%
14.	university of surrey	81	5.67	00:05:03	33.33%	19.75%
15.	proxad / free sas	80	4.11	00:03:04	53.75%	47.50%
16.	leibniz-rechenzentrum (lrz)	67	3.30	00:03:49	8.96%	34.33%
17.	uninett	61	3.89	00:02:34	59.02%	47.54%
18.	university of pitesti	60	3.20	00:01:54	25.00%	25.00%
19.	imperial college london	56	6.16	00:05:26	33.93%	41.07%
20.	arcor ag	50	3.46	00:02:54	42.00%	44.00%
21.	technische universitaet dresden	48	6.71	00:04:28	54.17%	22.92%
22.	comite gestor da internet no brasil	34	3.50	00:03:02	79.41%	44.12%
23.	ip pools	33	2.21	00:00:47	81.82%	57.58%

Figure 14. Network locations of EMANICS visitors

5,215 visits came from 1,205 network locations

Site Usage	Goal Conversion				Views:

Visits (?)	Pages/Visit (?)	Avg. Time on Site (?)	% New Visits (?)	Bounce Rate (?)
5,215	**4.91**	**00:04:01**	**52.79%**	**44.74%**
% of Site Total: 100.00%	Site Avg: 4.91 (0.00%)	Site Avg: 00:04:01 (0.00%)	Site Avg: 52.83% (-0.07%)	Site Avg: 44.74% (0.00%)

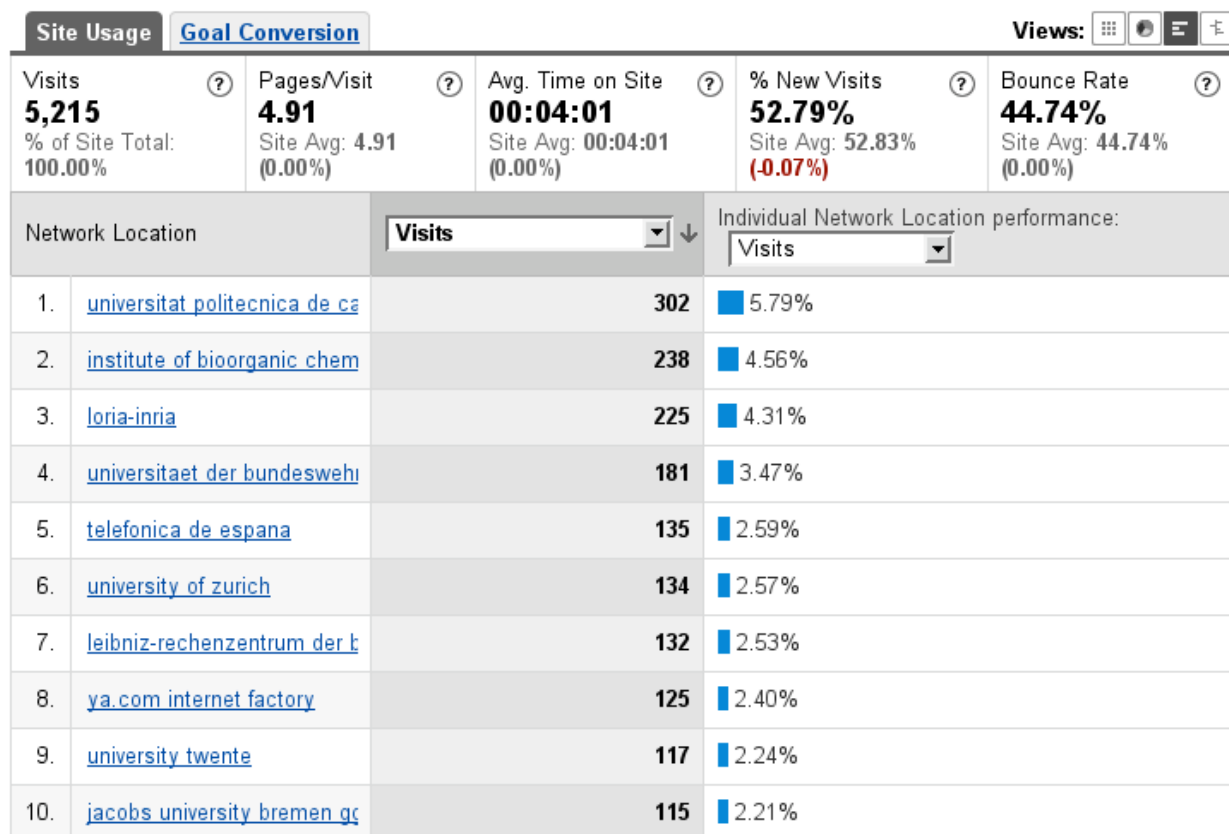| Network Location	Visits ↓	Individual Network Location performance: Visits
1. universitat politecnica de ca	302	5.79%
2. institute of bioorganic chem	238	4.56%
3. loria-inria	225	4.31%
4. universitaet der bundeswehr	181	3.47%
5. telefonica de espana	135	2.59%
6. university of zurich	134	2.57%
7. leibniz-rechenzentrum der b	132	2.53%
8. ya.com internet factory	125	2.40%
9. university twente	117	2.24%
10. jacobs university bremen go	115	2.21%

Figure 15. Network locations in %

Statistics presented in Figure 14 and Figure 15 are very interesting reports which define very precisely the institution (or provider) of visitors connecting to the EMANICS website.

3.3.1.10   Keywords

Figure 16 shows overall trends for different keywords.

Search sent 1,517 total visits via 740 keywords
Show: total | paid | non-paid   Segment: **Keyword** ⌄

Site Usage	**Goal Conversion**				Views: ⊞ ◉ ☰ ⌶ ╎ ⌇

Visits ⑦ **1,517** % of Site Total: 29.09%	Pages/Visit ⑦ **4.34** Site Avg: **4.91** (-11.48%)	Avg. Time on Site ⑦ **00:03:15** Site Avg: **00:04:01** (-19.39%)	% New Visits ⑦ **58.47%** Site Avg: 52.83% (10.68%)	Bounce Rate ⑦ **44.63%** Site Avg: 44.74% (-0.24%)

Keyword	Visits ↓	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
1. emanics	458	6.14	00:04:34	36.90%	20.09%
2. emanics summer school	90	5.72	00:04:47	8.89%	32.22%
3. emanics p2p	23	3.70	00:03:58	0.00%	43.48%
4. emanics nrmg	13	18.62	00:21:35	0.00%	15.38%
5. aimilios chourmouziadis	11	2.18	00:01:02	45.45%	54.55%
6. aims 2008 emanics	10	4.60	00:02:06	0.00%	10.00%
7. summer school emanics	10	4.20	00:02:43	20.00%	50.00%
8. promise theory	8	3.38	00:07:28	87.50%	50.00%
9. summer school 2008 ipv6	8	1.12	00:00:50	12.50%	87.50%
10. emanics jacobs	7	1.71	00:02:03	28.57%	57.14%
11. emanicslab	7	4.43	00:07:38	28.57%	42.86%
12. acm aims 2007	6	3.00	00:01:05	33.33%	33.33%
13. emanics network of excellence	6	7.83	00:14:31	83.33%	0.00%
14. radu state inria	6	3.83	00:06:44	16.67%	50.00%
15. autonomic internet	5	3.20	00:03:14	40.00%	20.00%
16. inurl:"com_yanc"	5	2.00	00:00:13	100.00%	40.00%
17. issnsm	5	1.40	00:00:55	40.00%	60.00%
18. joan serrat emanics email	5	4.20	00:01:17	20.00%	20.00%
19. luminita state	5	1.80	00:01:33	100.00%	80.00%
20. martin serrano upc	5	2.20	00:00:13	0.00%	60.00%
21. "autonomic internet"	4	2.50	00:02:24	50.00%	25.00%
22. "luminita state"	4	4.50	00:02:21	75.00%	25.00%

Figure 16. Keywords used to find the EMANICS site

The report shows that the most popular keyword (for 458 visits) used for finding the site is the name of the project – EMANICS. Unfortunately, the rest of keywords have much

lower level of visits in this statistic. This can be interpreted as a low impact on the visitors not knowing the EMANICS project.

3.3.1.11   Referring sites

Visitors can come directly typing the site address, typing keywords in a search engine or, indirectly from another site where there is a reference to this one. This report shows the visits coming from other sites with additional details.

Referring sites sent 2,067 visits via 96 sources
Segment: Source

Visits	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
2,067	**5.02**	**00:04:03**	**50.56%**	**43.30%**
% of Site Total: 39.64%	Site Avg: 4.91 (2.35%)	Site Avg: 00:04:01 (0.68%)	Site Avg: 52.83% (-4.30%)	Site Avg: 44.74% (-3.21%)

Source	Visits ↓	Pages/Visit	Avg. Time on Site	% New Visits	Bounce Rate
1. emanics.org	427	7.80	00:07:42	4.22%	22.48%
2. cfengine.org	252	2.53	00:01:17	92.86%	63.49%
3. simpleweb.org	133	3.70	00:01:49	86.47%	60.15%
4. eecs.iu-bremen.de	114	3.75	00:04:20	37.72%	52.63%
5. project.iu.hio.no	76	4.57	00:02:57	34.21%	28.95%
6. research.iu.hio.no	75	3.75	00:02:38	82.67%	57.33%
7. libresource.inria.fr	70	9.73	00:07:47	2.86%	21.43%
8. eecs.jacobs-university.de	66	3.71	00:03:09	25.76%	56.06%
9. hio.no	65	2.17	00:01:42	78.46%	67.69%
10. madynes.loria.fr	65	4.32	00:02:51	69.23%	46.15%
11. 147.83.106.118	64	5.27	00:03:16	7.81%	28.12%
12. oetiker.ch	49	2.10	00:00:34	85.71%	81.63%
13. cbgp.info.ucl.ac.be	48	2.10	00:01:10	62.50%	72.92%
14. wwwhegering.informatik.tu-muench	48	6.73	00:04:28	56.25%	20.83%
15. mnm-team.org	44	7.95	00:07:01	77.27%	22.73%
16. nm.ifi.lmu.de	39	4.26	00:03:35	71.79%	51.28%
17. personal.ee.surrey.ac.uk	39	5.33	00:02:43	71.79%	35.90%
18. inria.fr	35	2.80	00:01:03	45.71%	42.86%
19. www-dse.doc.ic.ac.uk	26	5.81	00:03:12	92.31%	30.77%
20. csg.uzh.ch	23	4.96	00:03:55	65.22%	30.43%
21. googgle.de	23	5.04	00:02:13	0.00%	13.04%
22. snmp.cs.utwente.nl	21	4.29	00:01:34	85.71%	66.67%

Figure 17. EMANICS visits from referring sites

3.3.1.12   All traffic sources

This report lists all kinds of traffic the site receives:

- "Direct (traffic)" are visits from people who clicked a bookmark to come to the site or who typed the site URL directly into their browser

- "Referral" shows visits from people who clicked to the site from another site.

- "Search Engines" shows visits from people who clicked to the site from a search engine result page.
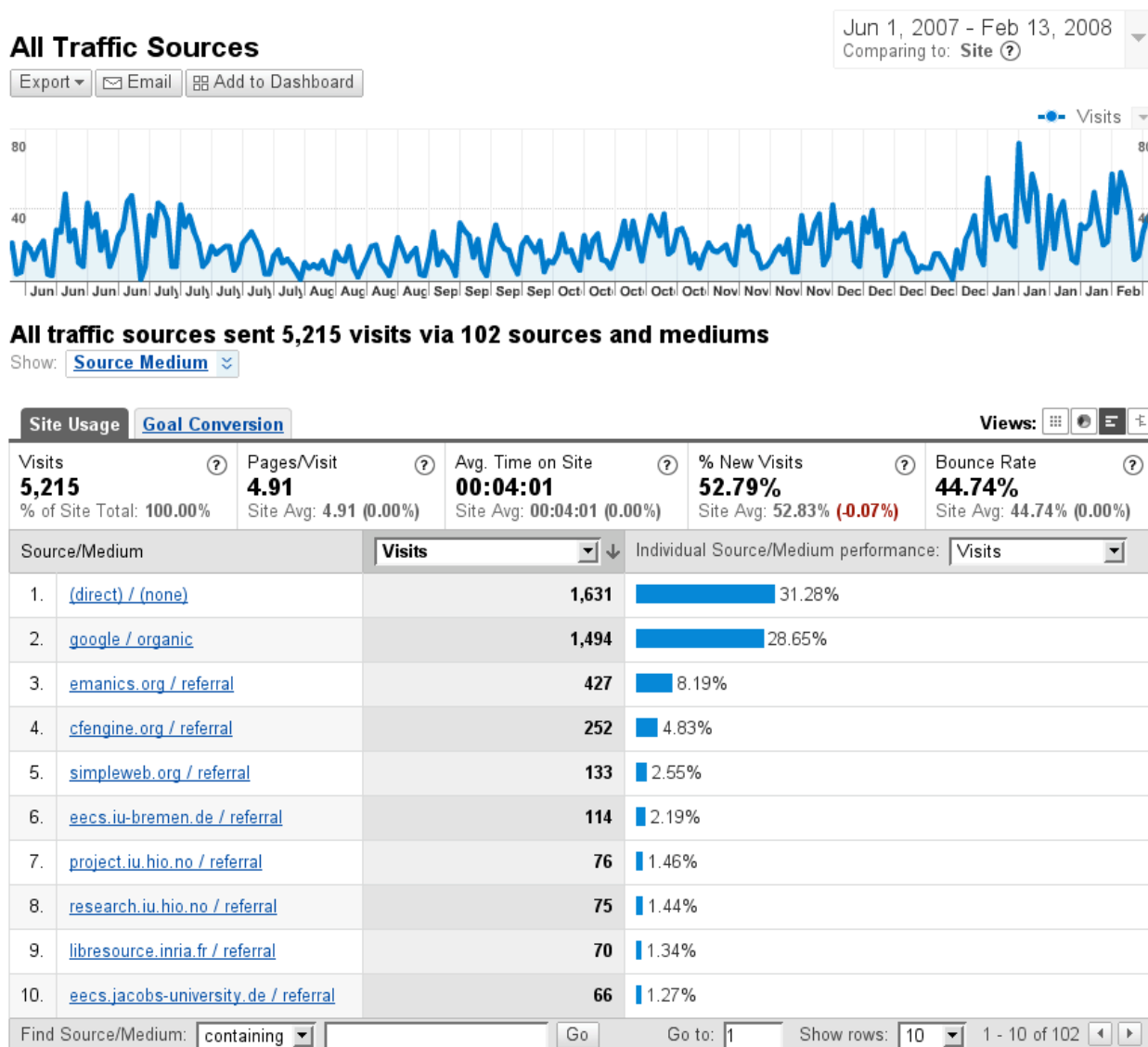

Figure 18. EMANICS all traffic sources

3.3.1.13   Site Overlay

This report provides an overview of pageview volume and displays the website pages superimposed with click graph. One can view the site under analysis with small

percentage bars positioned over every link showing how often on average it's clicked. However, site overlays do not work for outbound links. In Figure 19 we present a screenshot of the home page with percentage bars.

Figure 19. EMANICS site overlay – main page

3.3.2 Actions on the SimpleWeb site

Since July 2007 Google WebMaster tools have been used to improve indexing of the SimpleWeb by the Google search engine. For this purpose a sitemap.xml file was created, which contains a list of pages that:

- should be indexed by Google,

- should not be indexed by Google

- should be indexed first

The site-map is stored at http://www.simpleweb.org/sitemap.xml. It shows for most pages the default priority, which is 0.5000. The SimpleWeb's mainpage has a higher priority (1.0), like the IFIP homepage (priority = 0.9). The total number of URLs in the site-map is 417; 297 of them are being indexed by Google.

The advantage of using Google's Webmaster tools is that statistics of website usage, but also website problems, can be found easily.

Table 1. SimpleWeb top seven queries and their respective percentages

#	%	Query	Position
1	59%	snmp	9
2	18%	tmn	10
3	7%	network management	9
4	3%	mibs	5
5	3%	rmon	7
6	3%	network management software	7
7	1%	snmp software	2

For instance, Table 1 shows for the second week of February 2008 the top 7 queries in which the SimpleWeb appeared, and the percentage of these queries represented by each search. For example, of all queries made by Google users and resulting into a hit to the SimpleWeb, 59% used "snmp" as search term. On the page, Google displays after searching for "snmp", the SimpleWeb is listed on position 9. It is interesting to note, however, that the "awstats" statistics, which are mailtained locally on the SimpleWeb, shows that the term "snmp" represents only 8% of the keywords used by search engines, obviously different measurement approaches are being applied. Also interesting is that the SimpleWeb scores on position 2 for google searches for the term "snmp software".

Google's Webmaster tools also show the number of users who have subscribed to the SimpleWeb RSS feeds (cfp.rss, conferences.rss and podcast.rss) using Google products such as iGoogle, Google Reader, or Orkut. Usage of these numbers is questionable, however, since most users may have subscribed via different means.

3.4 The EMANICS newsletter

The EMANICS Newsletter describes the cooperation initiatives among partners and summarizes a number of related events such as conferences, meetings, etc. It also alerts audience with respect to forthcoming events. It is in fact a selection of information already available through the web but selected and presented in a condensed way by the editor. The newsletter is published through the web, it is emailed to interested parties and it is also distributed in paper format in the key network and service management conferences (IM/NOMS and ManWeek). During 2008 we have published two comprehensive newsletters and made them available to the community online and via email, through he established electronic dissemination environment. While three

letters are planned per year, the delivery of two newsletters during 2007 has served better the EMANICS interests, as the published letters coincided with the reporting of important events in the community. The first newsletter [10] published at the end of May 2008 included a report on IEEE/IFIP IM 2007 that was held 21-25 May and the second newsletter [11] published at the end of November included reports on ManWeek that was held at the end of October and on the join EMANICS-AGAVE workshop that was held in November. It should finally be mentioned that the two newsletters published in 2007 contain more information than the three newsletters published in 2006. The next issue is planned for March 2008 to include news on the Peer-to-Peer workshop to be held in Zurich in the beginning of March.

4 Extended dissemination & promotion

4.1 *The IFIP WG6.6 portal*

In September 2007 EMANICS members took over the chair (Aiko Pras – UT) and vice-chair (Olivier Festor – INRIA) positions of the IFIP TC6 WG 6.6. This WG focuses on the Management of Networks and Distributed Systems and is, next to IEEE CNOM, the leading professional organisation in our area. Within IFIP TC6, WG6.6. is the most active WG, sponsoring main events like IM, NOMS and ManWeek, as well as EUNICE 2007 and AIMS 2008.

As part of taking over the chair positions, EMANICS members are also taking over the IFIP WG6.6 website and mailing list. Work on transferring the mailing list is still ongoing, and will be completed before the NOMS 2008 conference, which takes place in April 2008 in Salvador, Brazil. The website has already been transferred, and will be described below.

The old IFIP WG6.6 website was owned by the previous IFIP WG6.6 chair, Raouf Boutaba, and hosted at http://bcr2.uwaterloo.ca/ifip/index.html. The website was created via some website creation program, the name of this program was unknown to the previous owner. As a consequence, due to the unlogical and machine generated HTML code, maintenance of the old website was cumbersome. Therefore the new owners decided to completely rewrite the HTML code, while still keeping the old "look and feel".

The new IFIP WG6.6 website is hosted at http://www.SimpleWeb.org/ifip/. Technically, each page on this new website contains of a clean and easy to edit main HTML file, and a number of Server Site Include (SSI) files. These include files are:

> *header.inc*: this file defines the initial page lay-out, and shows the IFIP and WG6.6 logo
>
> *Footer.inc*: this file defines part of the initial page lay-out
>
> *Navigation.inc*: this file defines the navigation buttons, at the top of the page
>
> *New.inc*: this file shows the news section at the left of each page
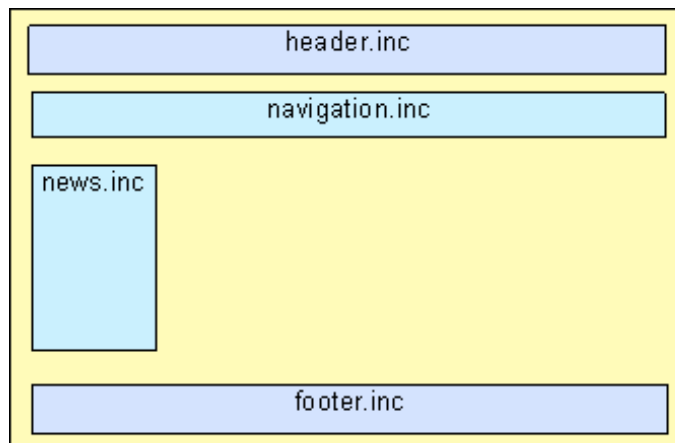
Figure 20 shows the usage of these include files.

Figure 20. Use of SSI files

Since these include files are used by all main files, changes within an include file (such as the news file) will immediately be visible on all main pages of the website. In this way consistency and ease of editing could be achieved.

Figure 21 shows the layout and contents of the first (main) page of the IFIP WG6.6 website. This main page explains the aims and scope of this working group and offers links to the subsequent pages.

Figure 21. Main page of the IFIP WG6.6 website

- *Officers* page identifies the officers who are responsible for chairing this working group. Both officers are member of the EMANICS Network of Excellence.

- *Members* shows a list of working group members, with the URL to their homepages, if available.

- *Mailing List* shows how to subscribe / unsubscribe to the IFIP WG6.6 mailing list. The address of this list is ifip_nm@lists.utwente.nl. Note that the new list is not (yet) operational; the website therefore still points to the old list.

- *Conferences* shows the main conferences sponsored by IFIP WG6.6. These are: IM, NOMS, ManWeek, DSOM and MMNS. The page includes direct links to the home pages of these conferences. For those conferences for which a webpage no longer exists, a copy of the original home page is stored on, and available from, the IFIP WG6.6 website. These conferences are: DSOM 1998, 1999 and 2001, as well as MMNS 1997, 1998, 2001, 2002 and 2003. The page also includes RSS feeds to past and future events in our area; these RSS feeds are maintained by EMANICS members.

- *Journals* shows the list of main journals in our field. It is interesting to observe that for most of these journals EMANICS members are series editors, associate editors or member of the editorial (advisory) board.

- *Event Organizers* shows information for potential organisers of IFIP WG6.6 events. The organisers of AIMS 2008, for example, have already requested IFIP sponsorship for their next event, which is in July 2008 in Bremen.

- *Awards* shows the winners of previous IFIP and NOMS awards. This page makes clear that in the past, except for Heinz-Gerd Hegering, Europeans had little success in getting such awards. With the better organisation within Europe, because of EMANICS, it should be more likely that future awards will go to Europeans.

4.2 The EMANICS Secretariat

The EMANICS Secretariat (ES) is a complementary activity to the Newsletter. In fact, as the newsletter, the ES describes the cooperation initiatives among partners and announces a number of related events such as conferences, meetings, workshops and it also alerts audience with respect to forthcoming events. Most of this information is then taken as the basis for a new issue of the newsletter. But the main difference in respect to the newsletter is that the ES pretends to inform the community almost in real time, as soon as an event is known or something relevant occurs it is published. Our current target is the update of the community in a weekly basis.

The ES uses the web site as its publication instrument; more specifically, the Welcome, the News and the Events sections. The Welcome page is reserved to the most prominent events and news which are of interest of both the EMANICS community and worldwide. Examples of facts that deserve to appear in that section are for instance the awards or recognitions given to our EMANICS colleagues, the announcement of grants to support students traveling to attend a specific conference or the organization of an open conference or workshop where the participation of EMANICS members is relevant. In order to avoid a long list of facts we set an expiration deadline when

something is published. The News section is intended to publish any kind of news of relevance to the community of network and service management but due to its importance in respect to EMANICS is not so much appropriate to be included in the Welcome section. The News section contains also all the facts advertised in the Welcome section. Nevertheless, in contrast with the former, this one does not establish an expiration deadline. Therefore it is a record of all the news published through the life of the project. Finally, the events section, although public, is more oriented to the interest of EMANICS community only.

The ES has been entrusted to one EMANICS partner who has established its own means to be aware of the facts deserving importance to be published well in advance. In addition the ES is also taking care of the cleaning and general update of the EMANICS site in close cooperation with the website administrators.

5 An enhanced Collaboration Environment

5.1 New collaboration environment based on Trac and SVN

5.1.1 Rationale for the creation of a new collaboration environment

The EMANICS electronic dissemination and collaboration environment was spitted since the beginning into two independent parts: a public one accessible for the whole Internet community and the private one supporting the internal collaboration only. The private part started in January 2006 using the LibreSource [12] collaboration platform hosted at INRIA's servers. Because of rapid grow of content and frequency of requests it caused huge server resources consumption and, as a result, loss of stability. On the other hand LibreSource, offering lots of functions and possibilities, was not enough easy and intuitive to use as expected by EMANICS participants.

In January 2007, the internal collaboration environment was judged as crucial for efficient advancement of the project. After considering different alternatives, a pair of complementing systems; namely Trac and SVN were preselected. These systems don't offer so sophisticated functions and fine grained access level control as LibreSource does, but unlike it are much simpler in use. The first evaluation of the new tool by EMANICS community was done based on a Jacobs University (IUB) Trac version deployment.

After about a month of testing, Trac and SVN were accepted as the new system for serving the internal collaboration environment.

Between March and May 2007 two tasks were undertaken in parallel. The content was moved from LibreSource to Trac&SVN. Because of completely different data structure and formatting style, the content migration was done manually. At the same time Trac&SVN was implemented on PSNC servers. In the middle of May Trac&SVN at PSNC was ready, so all the data collected and stored at JUB were imported to PSNC servers and one week later it was announced as ready to the whole EMANICS community.

Additional advantage of moving the whole internal site to PSNC and choosing one place for hosting both public and private parts of the web service is an easy authorization data sharing between them. Now users can easily reset their forgotten passwords with no

need of human administrator assistance. Because of an advanced web services infrastructure at PSNC, Trac and SVN are also very stable –only one restart was required since the beginning.

5.1.2 Usage statistics

The statistics reported hereafter correspond to the period between May 2007 and February 2008.

	Number of visits	Pages	Hits	Bandwidth
Viewed traffic *	1045	11741(11.24 pages/visit)	26621(25.47 hits/visit)	2.34 GB(2350.95 KB/visit)
Not viewed traffic *		5783	7148	147.02 MB

* Not viewed traffic includes traffic generated by robots, worms, or replies with special HTTP status codes.

Figure 22. Summary statistics for the internal part of EMANICS site for the period May-07 to Feb-08

Figure 23 shows that the monitored activity exceeds average values between June and July 2007 and in January 2008 when important events in EMANICS project took place.

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
May 2007	20	43	449	2218	21.10 MB
Jun 2007	67	188	1934	4447	555.43 MB
Jul 2007	75	163	2492	4365	832.74 MB
Aug 2007	20	42	501	1213	49.98 MB
Sep 2007	22	65	958	2012	56.39 MB
Oct 2007	58	128	1026	2390	137.35 MB
Nov 2007	21	50	334	703	27.24 MB
Dec 2007	32	66	645	2097	93.74 MB
Jan 2008	97	234	2578	5299	452.36 MB
Feb 2008	39	66	824	1877	172.83 MB
Total	<=451	1045	11741	26621	2.34 GB

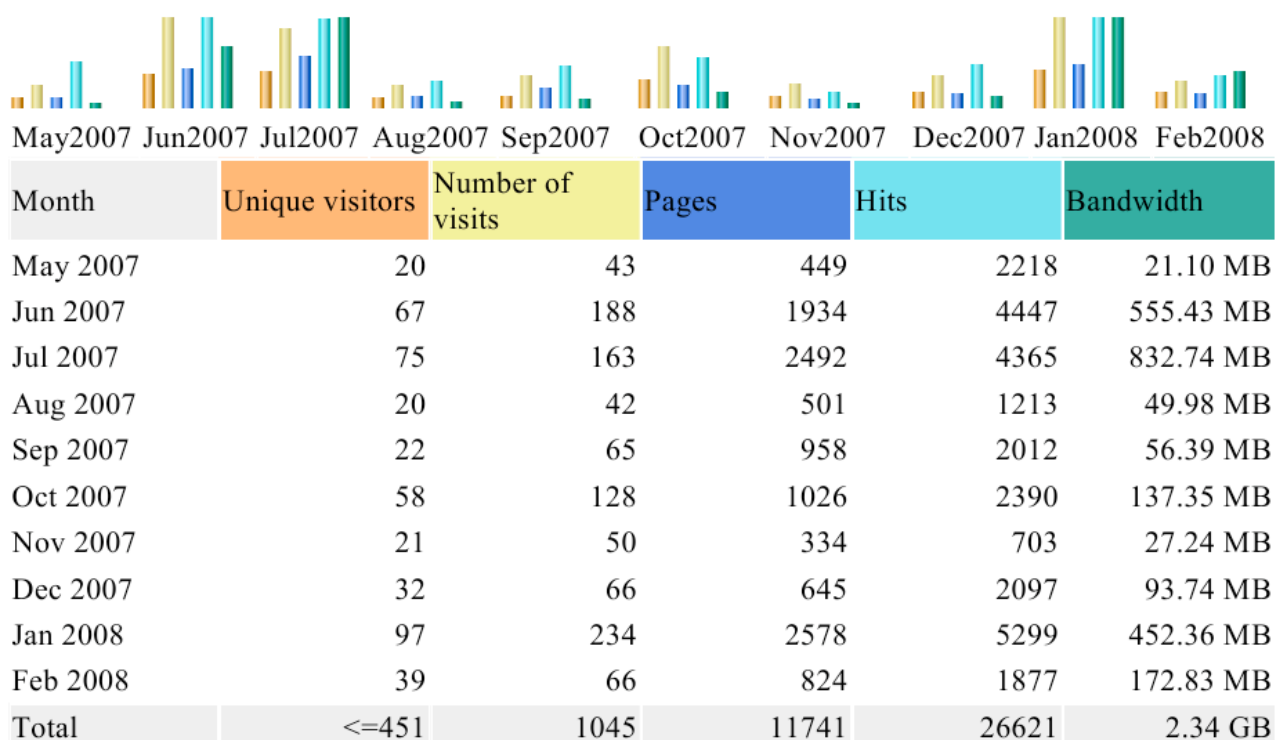*Figure 23. Visitors activity in particular months*

The time of main activity covers typical working hours as revealed by Figure 24.

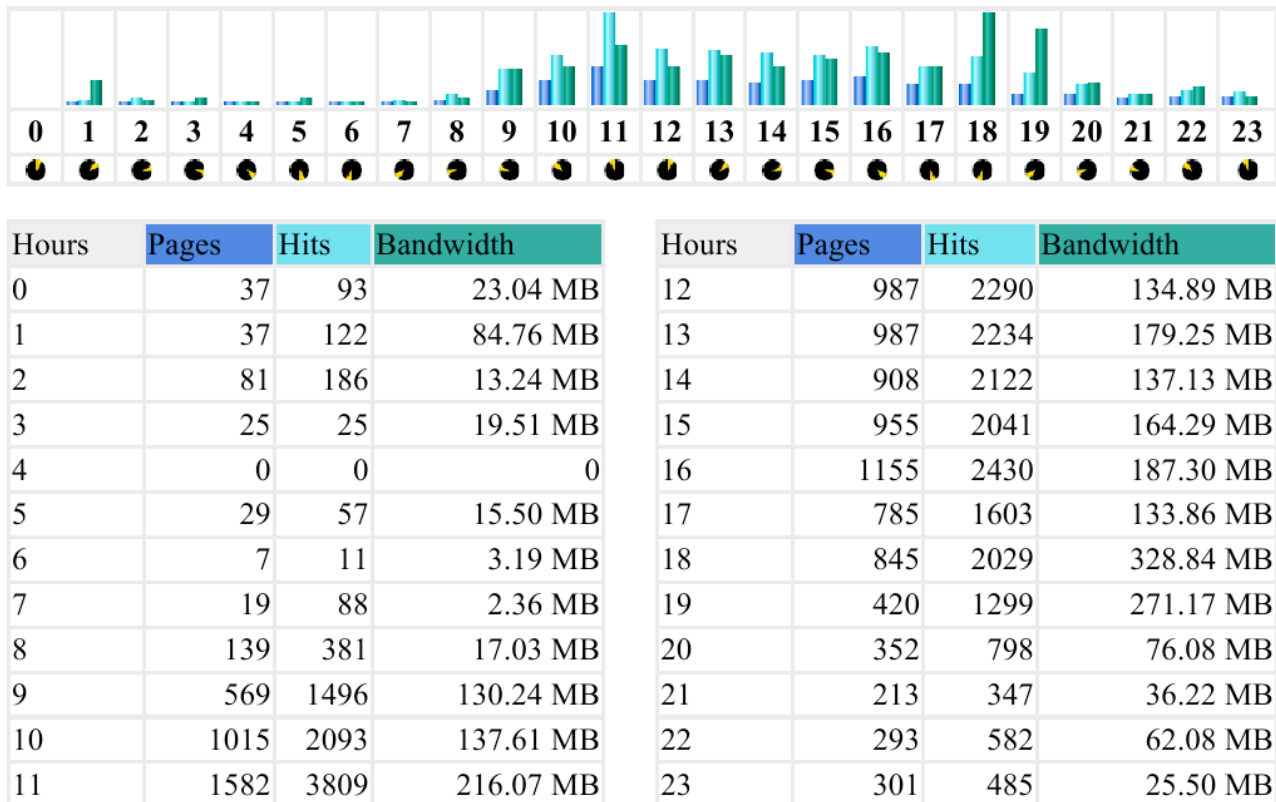| Hours	Pages	Hits	Bandwidth	Hours	Pages	Hits	Bandwidth
0	37	93	23.04 MB	12	987	2290	134.89 MB
1	37	122	84.76 MB	13	987	2234	179.25 MB
2	81	186	13.24 MB	14	908	2122	137.13 MB
3	25	25	19.51 MB	15	955	2041	164.29 MB
4	0	0	0	16	1155	2430	187.30 MB
5	29	57	15.50 MB	17	785	1603	133.86 MB
6	7	11	3.19 MB	18	845	2029	328.84 MB
7	19	88	2.36 MB	19	420	1299	271.17 MB
8	139	381	17.03 MB	20	352	798	76.08 MB
9	569	1496	130.24 MB	21	213	347	36.22 MB
10	1015	2093	137.61 MB	22	293	582	62.08 MB
11	1582	3809	216.07 MB	23	301	485	25.50 MB

Figure 24. Visitors activity in particular hours

Figure 25 shows the 10 most active hosts generating over half of the traffic.

Hosts : 311	Pages	Hits	Bandwidth
130.60.156.86	1456	2193	198.35 MB
137.193.63.170	1197	3885	207.69 MB
141.84.218.43	1026	1540	675.19 MB
212.201.44.249	549	1042	95.14 MB
152.81.11.148	476	1004	27.30 MB
147.83.91.188	402	830	57.92 MB
150.254.170.65	374	1949	34.53 MB
137.193.63.64	247	518	100.66 MB
128.39.89.11	199	345	12.75 MB
131.227.76.238	196	448	11.35 MB
Others	5619	12867	978.28 MB

Figure 25. Top 10 active hosts

Figure 26 reveals that most often visits are short, but visits with duration of a few minutes are also usual.

Number of visits: 1045 - Average: 675 s	Number of visits	Percent
0s-30s	394	37.7 %
30s-2mn	160	15.3 %
2mn-5mn	121	11.5 %
5mn-15mn	129	12.3 %
15mn-30mn	92	8.8 %
30mn-1h	84	8 %
1h+	65	6.2 %

Figure 26. Visits duration

Most visits begin on the main Trac site and also end there (entry and exit page).

1375 different pages-url	Viewed	Average size	Entry	Exit	
/projects/emanics/	790	8.38 KB	426	45	
/svnroot/emanics/	459	690 Bytes	62	20	
/projects/emanics/wiki/wp2	291	8.97 KB	11	21	
/svnroot/emanics/wp2/	219	445 Bytes	39	2	
/projects/emanics/wiki/dl	188	13.22 KB	12	21	
/projects/emanics/wiki	185	8.39 KB	10	17	
/projects/emanics/wiki/wp0	170	6.65 KB	11	14	
/svnroot/emanics/wp9/	159	364 Bytes	21	5	
/projects/emanics/wiki/wp1	151	6.89 KB	5	4	
/projects/emanics/browser	149	11.43 KB	5	4	
Others	8980	212.00 KB	443	892	

Figure 27. Top 10 pages URL

Figure 28 and Figure 29 reveal that EMANICS participants in general are using Windows and that the most popular browser is Mozilla Firefox.

Operating Systems		Hits	Percent
	Windows	17265	64.8 %
	Linux	4851	18.2 %
	Macintosh	3687	13.8 %
	Unknown	818	3 %

Figure 28. OSs used for visiting internal part of the EMANICS site

	Browsers	Grabber	Hits	Percent
	Firefox	No	16362	61.4 %
	MS Internet Explorer	No	7827	29.4 %
	Unknown	?	784	2.9 %
	Safari	No	672	2.5 %
	Mozilla	No	503	1.8 %
	Opera	No	218	0.8 %
	Konqueror	No	169	0.6 %
	Netscape	No	52	0.1 %
-	Wget	Yes	34	0.1 %

Figure 29. Browsers used to access the internal part of the EMANICS site

5.2 Integration of a wiki in the Joomla CMS

OpenWiki is the Joomla integration of the DokuWiki [6] solution. DokuWiki is a standards compliant, simple to use Wiki, mainly aimed at creating documentation of any kind. It is targeted at developer teams, workgroups and small companies. It has a simple but powerful syntax which makes sure the datafiles remain readable outside the Wiki and eases the creation of structured texts. In DokuWIki all data are stored in plain text files – no database is required.

OpenWiki has an ACL Permission system which uses the Joomla ACL Groups: Super Administrator, Administrator, Manager, Author, Registered and Public.

The OpenWIki implemented on the Joomla server for the EMANICS site is based on another implementation consisting of a modified version of the great OpenWiki 1.1.0 by Marko Schmuck from www.j-prosolution.com and extended with the popular Slimbox javascript by Christophe Beyl from www.digitalia.be [13]. The component is based on GNU GPL license.

The main DokuWiki features include:

- Simple syntax
- Unlimited page revisions
- Recent changes – a special wiki page, that shows a list of pages in the wiki that were changed recently. For each page it lists: the modification time, which user changed it and the edit summary
- Coloured side by side diff support
- Uploading and embedding of images and other media
- Customizable Interwiki link by having some simple link syntax (Wiki pagenames with a shortcut)
- Optional CamelCase support – a way of automatically linking to other pages in the Wiki using words with a capital letter at the start
- Content can be categorized in namespaces, easily browsable through an automatic index

Unfortunately, downloading requires registering on a Slovakian website. There is lack of support and good documentation, however the code is written with English comments.

In order to customize the interface layout and fit its appearance to the EMANICS website style, it was necessary to implement a number of changes to the component. Unfortunately the original component has built-in logic responsible for html output generation integrated directly into the code. The only solution for adjusting the appearance of OpenWiki component was to modify parts of the code.

The following changes were implemented for the EMANICS website integration:

- layout and positioning of upper buttons and search box
- remove some redundant upper buttons
- better positioning of bottom toolbar and buttons
- styles of fonts including color, size, positioning
- removing automatic table of contents generation for better layout

The final version of OpenWiki component was ready for EMANICS community in the beginning of September 2007.

OpenWiki was chosen to publish the PhDs activity within EMANICS and also to support other initiatives like the organization of the General Assembly in January 2008 as shown in Figure 30.

Figure 30. OpenWiki interface implemented on the EMANICS website

6 Concluding remarks

WP4 is progressing well in view of its objectives. First, this work-package established the electronic dissemination and collaboration means within EMANICS. Afterwards, this work-package has been tracking the usage and impact of such means adopting the appropriate measures to make them more effective.

Our policy is summarized in three keywords, namely, consolidate, enhance and extend. Consolidate means to look at tools and content that has been proven to be effective and therefore that deserve to be kept alive and to take the appropriate actions to allow them to be fully operational. Enhance means to do appropriate modifications, even the full replacement if necessary, of tools and content that manifest a clear way to be improved. Finally, extension means to look forward both in terms of dissemination means and content properly said.

According to the conclusions derived from a continuous web usage data capture and evaluation, we have learnt that a tool is not used until it doesn't reach a critical mass of users or functionality. Our goal is then to pursue in that direction so that the EMANICS site and its sister the SimpleWeb site become really impacting sites in the field of network and service management. In addition, we also work with the intention to facilitate as much possible the flow of information within our EMANICS community and ultimately to contribute to make integration a reality.

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Abbreviations

AIMS	Autonomous Infrastructure Management and Security (annual conference)
CMS	Content Management System
CMS	Content Management System
CNOM	Committee of Network Operations and Management
CSS	Cascading Style Sheets
GA	Google Analytics
GNU	GNU project
IANA	Internet Assigned Numbers Authority
IFIP	International Federation for Information Processing
IM	Integrated Management (bi-annual conference)
JPA	Joint Program of Activities
MANET	Mobile Ad-hoc Networks
ManWeek	Management Week (group of annual workshops)
NoE	Network of Excellence
NOMS	Network Operations and Management Symposium (bi-annual conference)
OS	Operative System
PHP	Hypertext Pre-processor language
URL	Uniform Request Locator
XML	Extended Markup Language
XSL	Extensible Stylesheet Language